

## CLAIMS

1. A display device comprising:  
5 a matrix array of display elements (2) each driven by an input provided on a data conductor (6); and  
data conductor addressing circuitry (9) for generating the inputs in response to input data,  
wherein the data conductor addressing circuitry (9) comprises:  
10 a plurality of controllable driver circuits (32, 34, 40), each for providing an input to an associated data conductor (6), wherein the number of controllable driver circuits is at least one greater than the number required for providing data to all data conductors (6); and  
a reference driver circuit (30), wherein the reference driver circuit  
15 (30) is for calibrating at least one of the controllable driver circuits whilst the other controllable driver circuits provide inputs to the data conductors.
2. A device as claimed in claim 1, comprising a matrix array of current-addressed display elements (2), each driven by an input current, and  
20 wherein the driver circuits (32,34,40) comprise current source circuits for providing an input current to the associated data conductor (6), and the reference driver circuit (30) comprises a reference current source.
3. A device as claimed in claim 2, wherein each display element is  
25 provided with an associated switching circuit for sampling the input current and subsequently providing the sampled input current to the display element (2).
4. A device as claimed in claim 3, comprising an active matrix electroluminescent display device.  
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5. A device as claimed in claim 1, comprising a matrix array of voltage-addressed display elements, each driven by an input voltage, and

wherein the driver circuits comprise voltage source circuits for providing an input voltage to the associated data conductor, and the reference driver circuit comprises a reference voltage source.

5           6.     A device as claimed in any preceding claim, wherein the number of driver circuits (32,34,40) required for providing inputs to all data conductors (6) is equal to the number of data conductors.

10           7.     A device as claimed in any one of claims 1 to 5, wherein the number of driver circuits (32,34,40) required for providing inputs to all data conductors is equal to a fraction of the number of data conductors, and wherein each driver circuit is for providing inputs to a group of data conductors in multiplexed manner.

15           8.     A device as claimed in claim 2, 3 or 4, wherein the number of current source circuits (60) required for providing currents to all data conductors (6) is equal to a multiple of the number of data conductors, and wherein the current for each data conductor is provided by the multiple number of current source circuits (60).

20           9.     A device as claimed in claim 8, wherein the multiple number of current source circuits (60) providing current to an associated data conductor is selected from a group (11-18) having a larger number of current source circuits, and the multiple number is formed from a different selection from the group at different times.

25           10.    A device as claimed in any preceding claim, wherein the reference driver circuit (30) is for calibrating each of the controllable driver circuits in a sequence, and wherein the controllable driver circuits not being  
30    calibrated together provide the inputs to all data conductors.

11. A method of providing drive signals to the data conductors (6) of a display device during a data addressing period, the display device comprising an array of display elements (2), the method comprising:

generating inputs to be provided to the data conductors in response to  
5 input data using a plurality of controllable driver circuits (32,34,40) selected from a number of controllable driver circuits which is at least one greater than the number required for providing inputs to all data conductors (6);

simultaneously calibrating the remaining at least one further controllable driver circuit (32,34,40) using a reference driver circuit (30),

10 wherein a different driver circuit or circuits are calibrated during different data addressing periods.

12. A method as claimed in claim 11 for providing current drive signals to the data conductors, the display device comprising an array of  
15 current-addressed display elements (2), the controllable driver circuits (32,34,40) comprising controllable current source circuits and the reference driver circuit (30) comprising a reference current source, and wherein the method comprises generating input currents in response to the input data.

20 13. A method as claimed in claim 11 or 12, wherein one driver circuit is used to provide the input to each data conductor.

14. A method as claimed in claim 11 or 12, wherein one driver circuit is used to provide the input to a group of data conductors in multiplexed  
25 manner.

15. A method as claimed in claim 12, wherein a plurality of current source circuits (60) is used to provide the input current to each data conductor.

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16. A method as claimed in claim 15, wherein the plurality of current source circuits (60) providing the input current to each data conductor is

selected from a group having a larger number of current source circuits, and the plurality is formed from a different selection from the group at different times.

- 5            17.    A method as claimed in any one of claims 11 to 16, wherein the reference driver circuit is used to calibrate each of the controllable driver circuits in a sequence, and wherein the controllable driver circuits not being calibrated together provide the inputs to all data conductors.